

aqueous solution preparation to penetrate the wood substrate,

(c) reacting in situ within the wood substrate the first and the second component aqueous solution preparations with each other in contact with the wood substrate, and

(d) imparting a stable color change to [color characteristics of] the wood substrate.

3. (Amended) The kit of claim 30, wherein the oxygen source is a peroxide and both preparations [are exclusively] consisting essentially of aqueous solutions.

#### REMARKS

Entry of the amendments, reconsideration and allowance are respectfully requested.

Applicant appreciates the thorough examination and suggestions by the Examiner. The above amendments address the 35 U.S.C. 112 issues in the Office Action. No new matter has been added. Entry of the amendments and allowance are requested.

The invention uniquely provides permanent wood staining without use of hazardous or environmentally unfriendly chemicals, which is new and unobvious. The invention has two parts, and the staining is accomplished in two steps. The first part is an aqueous solution of metal salts, which is applied to the wood and which penetrates the surface of the wood. The second solution is an aqueous oxidizer solution which penetrates the wood and fixes

the metal salts in place within the wood.

For an invention to be anticipated, it must be demonstrated that each and every element of the claimed invention is present in the "four corners" of a single prior art, either expressly described therein or under the principle of inherency. Lewmar Marine Inc. v Barient Inc., 3 USPQ2d 1766, 1767-1768 (CAFC, 1987). The absence from prior art reference any claimed element negates anticipation. Kloster Speedsteel AB v. Crucible, Inc., 230 USPQ 81, 84 (Fed. Cir. 1986).

Claim 1 is patentable over Matsushita.

Claim 1 describes a kit for imparting a pre-determined color to a solid wood substrate, comprising an aqueous solution of a first compound consisting of a mineral salt and water as a first application on the solid wood substrate, and a second component comprising an aqueous solution of a peroxide as a sequential application on the solid wood substrate, the mineral salt and peroxide solutions as sequential applications in effective amounts on the substrate and colored layer on the substrate formed by the applications reacting with each other in the presence of the substrate to impart the color to the substrate.

Matsushita relates to colored woods manufactured by impregnating woods with reactive coloring solutions and with dye solutions and synthetic resins and color coatings. The present specification clearly points out the disadvantages of prior art staining systems, such as Matsushita, and provides for a unique coloring system that allows substances to be applied to the wood

that react in situ resulting in automatic coloring of the substrate because of the reaction. Claim 1 does not relate to coloring the substrate by applying a dye or a synthetic resin or coloring solutions. Matsushita thus teaches away from the claimed invention and cannot anticipate claim 1.

Claims 3-7, 9-10 and 30-36 are patentable over Brown.

Claim 30 describes a kit for treating and coloring a wood substrate, comprising a first component aqueous solution of oxidizable metal salt preparation for a first application to the wood substrate, and a second component aqueous solution of oxygen source preparation for a sequential application to the wood substrate, the aqueous solution preparations being adapted to sequentially penetrate the wood substrate when sequentially applied, and both aqueous solution preparations when applied sequentially in effective amounts, being adapted to react with each other within the wood substrate to impart physical color characteristic to the wood substrate.

The dependent claims add further unique features to claim 30, and each is patentable over Brown.

Brown does not dye wood, but rather dyes hair, which has nothing to do with dying wood. Moreover, Brown has an intermediate step of contacting hair with an organic solution and rinsing or shampooing the hair, and then bleaching the hair with hydrogen peroxide to obtain a lighter color. The hydrogen peroxide in Brown leads away from the present invention, because the hydrogen peroxide does not fix the metal salts in place. Nor

is there anything in Brown which would suggest that Brown be used with wood.

Brown, from an unrelated art, provides for dyeing hair to promote melanogenesis in hair, which has nothing to do with solid wood substrate coloring. Brown defines dyeing the hair with intermittent intervals to a dark color and then treating with hydrogen peroxide to obtain the desired color. That is contrary to the claimed in situ reaction of the mineral salts and hydrogen peroxide within the wood substrate being treated.

Thus, Brown does not teach nor suggest the claimed invention and therefore cannot anticipate the claims.

Claims 3-10 and 30-36 are patentable over Tennigkeit.

Like Brown, Tennigkeit relates to dyeing hair with an oxidation dye mixed with an oxidizing agent and a catalyst. However, nothing in the reference teaches, suggests or inherently provides for coloring a wood substrate in which substances are applied to the substrate and react in situ to provide the coloring which has nothing to do with pre-made dyes being applied to hair. Thus, the reference leads away from the claimed invention.

Claims 1, 3-6, 9-10, 30, and 32-36 are patentable over SU '297 (Light).

Light has nothing to do with the present invention because Light is a process for de-canning goatskin, followed by a pickling and re-canning or final canning, followed by neutralization and a combined dying and tallowing. Nothing in

Light would refer to wood, and the use of the multiple steps in Light would lead away from the present invention. The complexity of Light would lead one away from the present invention. Moreover, there is nothing in the multiple step process of treating leather that would suggest a dying of wood in a two-step process.

Light relates to leather glove production by tanning in a combined hydrogen peroxide-sodium hydroxide solution and then treating with aluminum slats and dyeing. The reference teaching seeks to solve the problem of repeated tanning and pickling of leather rather than having anything to do with color preservation as uniquely provided by the present invention.

Claims 3-7, 30, 31, and 36 are patentable over Yantai.

Yantai relates to treatment of marble to form glazed surfaces and thereafter etching and exposing the treated surface to make black markings of the decorations. That teaching has nothing to do with wood substrates and would in fact lead away from the present invention since there is not teaching or suggestion of an in situ reaction of two solutions to give an - end-result of substrate collation.

Claims 2-10, 21, 30, 31, and 36 are patentable over Bures.

Bures relates to a three step process of treating woods with metal salts, oxidants, dyes and permeation agents.

However, the reference does not teach nor suggest a kit for treating and coloring a wood substrate, comprising a first component aqueous solution of oxidizable metal salt preparation

for a first application to the wood substrate, and a second component aqueous solution of oxygen source preparation for a sequential application to the wood substrate, the aqueous solution preparations being adapted to sequentially penetrate the wood substrate when sequentially applied, and both aqueous solution preparations when applied sequentially in effective amounts, being adapted to react with each other within the wood substrate to impart physical color characteristic to the wood substrate.

Since the cited reference does not disclose all the elements of the present invention, the reference cannot anticipate the present invention. Thus, lacking an element of the claims, the reference cannot anticipate the invention. Carmen Indus., Inc. v. Wahl, 220 USPQ 481, 485 (Fed. Cir. 1983).

Claims 2-8, 9-10, 20-22, 30-34, and 36, as well as claim 35, are patentable over Dombay.

Dombay merely coats wood with an oxidizing agent to lighten the wood. Dombay uses ammonium persulfate, and cupric sulfate as accelerants in concentrated hydrochloric acid with a methylated spirit, and an organic solvent teepol. In some cases Dombay treats some woods with an A solution to produce a darkening effect, and some woods with a B solution to produce a lightening effect. Whatever the result of Dombay, it is clear that Dombay does not teach the present invention as specifically pointed out in the claims.

Dombay relates to wood bleaching in which the reference

mandates the use of methylated spirit, which the present invention particularly avoids. The present specification describes the ill-effects of prior art procedures that mandate alcohol based substances which harm the environment. In fact, Example 4, relied on by the Examiner, provides for 150 ml of methylated spirit. Potassium permanganate and cupric sulphate are used as bleaching accelerants in the one-step Dombay bleaching process. Acetic acid is used to stop the bleaching.

Nothing in the entire reference teaches or suggests the unique kit that has an aqueous solution of a mineral salt and an aqueous solution of a peroxide, with the mineral salt solution being applied prior to the peroxide solution and the in situ reaction of the applied substances with the substrate.

In fact, none of the references teach or suggest the claimed two step in situ treatment with the unique kit defined in the present claims. The present invention uniquely provides treatment of all substrates including light colored wood and is exclusively a two part process.

"To establish inherency, the extrinsic evidence 'must make it clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill.'" In re Robertson, 48 USPQ2d 1949, 1951 (Fed. Cir. 1999) quoting from Continental Can Co. v. Monsanto Co., 20 USPQ2d 1746, 1749 (Fed. Cir. 1991). "Inherency, however, may not be established by probabilities or possibilities. The mere fact that a certain

thing may result from a given set of circumstances is not sufficient. Id. 20 USPQ2d at 1749.

The invention provides an aqueous solution of a mineral salt thereby providing water soluble ions of mineral salts which are applied to a suitable substrate and allowed to briefly dry. In a second step the water soluble mineral salts transition into insoluble mineral oxide compounds which form inside and around the cellulose fibers. The agents used to transition the mineral salt ions into insoluble oxide compounds include dilute hydrogen peroxide solutions, to prevent harm to the environment, and other dilute strength agents such as sodium peroxide and sodium hydroxide. Again, stronger solutions pose a greater threat to the environment and user.

The present process is expressly useful in enhancing the natural nuances of a particular piece of wood, thereby giving it a more natural color than a conventional stain. The process enhances the variations of color within a given species of wood, therefore differing from the prior art, all of which aim to provide bleaching for more uniform color of wood or of hair, which is not relevant.

The commercial viability of the present process relies on enhancing the naturally occurring qualities of a specific wood particularly lighter colored species such a Pine, Larch, Poplar, Alder, Maple, Fur, Ash, Bamboo (a grass), Hackberry, Black Willow, Oak, Birch, and others. All of those are considered colored woods, many of which are rapidly grown, sustainable

harvestable species.

"The inherency of an advantage and its obviousness are entirely different questions. That which may be inherent is not necessarily known. Obviousness cannot be predicated on what is unknown. In re Spormann and Heinke, 150 USPQ 449, 452 (CCPA 1966). "... if the Patent Office wishes to rely on what 'Those familiar with [invention] would know,' it must produce some reference showing what such knowledge consists of." Id.

The prior art expressly intends to impart a stabilized color to dark and medium colored woods by utilizing hypochlorite, persulphate and peroxide compounds. The use of mineral salt ions specifically Iron, Zinc or Silver is not employed or mentioned. In fact, the reference relies on the exclusive use of hypochlorite, persulphate and peroxide compounds to bleach wood.

Contrastingly, the claimed process is expressly concerned with darkening the color of the top-most layer of wood cellulose and other substrates by transitioning water soluble mineral ions into oxides within the top-most layer of the substrate. The process bonds the transitioned minerals to the cellulose fibers and creates a more or less stable color which may slightly lighten or darken over time.

The light fastness is considerably better than prior art dyes (specifically aniline dyes) used to color wood and other substrates. The primary commercial use for the invention is to impart a range of colors (earth tones primarily) to light and medium colored woods and to use as an alternative to conventional

staining products which may contain hazardous VOC's or other hazardous chemical compounds. Also, conventional dyes and colorants for wood does not enhance the natural qualities of the wood or other substrate as does the Auger Mineral Stain Process.

Minerals used in the present invention are expressly create color within the wood or substrate. Minerals utilized alone or in combination are: Iron, Zinc and Silver salts, specifically Iron I Chloride, Sulfate and Perchlorate; Zinc Perchlorate, Silver Perchlorate and Silver Nitrate, among others.

No potassium persulphate, sodium persulfate, ammonium persulfate, sodium carbonate, acetic acid, glacial acetic acid, potassium permanganate, cupric ions or ammonia are used in the claimed process. Thus, the claimed invention always imparts the substrate with an alkaline pH.

See In re Meng, 181 USPQ 94, 97 (CCPA 1974), wherein the Court held:

"Of course the invention seems simple, after the fact. But simplicity, particularly in an old and crowded art, may argue for rather than against patentability. In re Sporck, 133 USPQ 360 ( CCPA 1962). Progress in the crowded arts, usually made in small increments, is as important as it is in arts at the pioneer stage. In re Hummer, 113 USPQ 66 (CCPA 1957). The Constitution envisages and seeks progress in the 'useful arts,' not just those more esoteric or scientific."

Proper surface preparation consistent with any preparatory procedure used to prepare wood for finishing allows for adequate penetration of the mineral salt solution. Additionally an anionic surfactant may be added to the mineral salt solution to aid in the penetration of the mineral salt solution, this is

especially useful for industrial and manufacturing situations where dust, grease and other debris may be present and form surface tension prohibiting the mineral salt solution (A) from penetrating the substrate.

"The mere fact that a certain thing may result from a given set of circumstances is not sufficient [to establish inherency]."  
In re Rijckaert, 28 USPQ2d 1955, 1957 (Fed. Cir. 1993), quoting from In re Oelrich, 212 USPQ 323, 326 (CCPA 1981). "Such a retrospective view of inherency is not a substitute for some teaching or suggestion supporting an obviousness rejection."  
Rijckaert, *id.*, quoting from In re Newell, 13 USPQ2d 1248, 1250 (Fed. Cir. 1989).

Contrary to the prior art, and according to the invention, the solution is completely dry prior to the application of the (catalyst) solution. Also, contrary to the prior art, the present invention transitions the European Oak instantly through its process to the yellow color the prior art is attempting to avoid. By producing the yellow or "aged" color Auger allows woodworkers to match the tone of "aged" or "antique" wood thereby giving woodworkers the opportunity to make reproductions, restore or color wood articles in a manner consistent with the color expected from wood which has acquired an "aged" or "antique" appearance.

The Board, in Ex parte Levengood, 28 USPQ2d 1300, 1301 (Board of App. and Inter. 1993), observed:

"The only suggestion for the examiner's combination of the isolated teachings of the applied references improperly

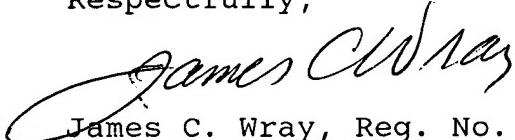
stems from appellant's disclosure and not from the applied prior art. In re Ehrreich, 200 USPQ 504 (CCPA 1979). At best, the examiner's comments regarding obviousness amount to an assertion that one of ordinary skill in the art would have been able to arrive at the appellant's invention because he had the necessary skills to carry out the requisite... steps. This is an inappropriate standard for obviousness."

The above is true for the present case.

Nothing in the references, either singly or in combination, teaches or suggests the claimed features. Therefore, the references cannot anticipate nor render obvious any of the claims.

Reconsideration and allowance are respectfully requested.

Respectfully,



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November 12, 1999